

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application:

1. (original) A light emitting device configured by epitaxially growing, on a first main surface of a substrate bulk composed of a GaAs single crystal, a separation-assisting compound semiconductor layer composed of a III-V compound semiconductor single crystal having a composition differed from GaAs; epitaxially growing a sub-substrate portion composed of a GaAs single crystal on the separation-assisting compound semiconductor layer, to thereby fabricate a composite growth-assisting substrate; epitaxially growing, on a first main surface of the sub-substrate portion, a main compound semiconductor layer having therein a light emitting layer portion; removing the separation-assisting compound semiconductor layer by chemical etching, to thereby separate, from the composite growth-assisting substrate, the sub-substrate portion so as to be remained as a residual substrate portion on a second main surface of the main compound semiconductor layer; and cutting off a portion of the residual substrate portion to thereby form a cut-off portion having the bottom surface thereof serves as a light extraction surface or a reflective surface with respect to emission beam from the light emitting layer portion.

2. (original) The light emitting device as claimed in Claim 1, wherein the main

compound semiconductor layer is epitaxially grown in contact with the first main surface of the sub-substrate.

3. (currently amended) The light emitting device as claimed in Claim 1 **[[or 2]]**, wherein the main compound semiconductor layer has a main light extraction surface formed on the first main surface side, and has a light-extraction-side electrode, through which emission drive voltage is applied to the light emitting layer portion, formed so as to cover a part of the first main surface of the main compound semiconductor layer;

the cut-off portion is formed, as an opening opened on the second main surface of the residual substrate portion, by partially cutting off the residual substrate portion disposed on the second main surface side of the main compound semiconductor layer, so as to leave the residual substrate portion around the periphery of the opening; and

the opening has, as being provided thereto, a reflective component reflecting the emission beam from the light emitting layer portion.

4. (currently amended) The light emitting device as claimed in Claim 1 **[[or 2]]**, wherein the main compound semiconductor layer has a main light extraction surface formed on the first main surface side, and has a light-extraction-side electrode, through which emission drive voltage is applied to the light emitting layer portion, formed so as to cover a part of the first main surface of the main compound semiconductor layer;

the cut-off portion is formed in the residual substrate portion disposed on the second main surface side of the main compound semiconductor layer, at least in a

region straight under the light extraction surface, and at least a portion of the region straight under the light-extraction-side electrode is contained in the residual substrate portion.

5. (currently amended) The light emitting device as claimed in Claim 1 **[[or 2]]**, wherein the cut-off portion is formed by cutting off a portion of the residual substrate portion, allowing the bottom surface of the cut-off portion to serve as a main light extraction surface, and the light-extraction-side electrode, through which emission drive voltage is applied to the light emitting layer portion, is formed so as to cover the second main surface of the residual substrate portion.

6. (currently amended) The light emitting device as claimed in Claim 1 **[[or 2]]**, configured by epitaxially growing the main compound semiconductor layer, having therein the light emitting layer portion, on the first main surface of the sub-substrate portion; forming the cut-off portion in a part of the residual substrate portion; forming a first electrode portion, through which emission drive voltage is applied to the light emitting layer portion, so as to cover the second main surface of the residual substrate portion;

the light emitting layer portion has a double heterostructure in which a first-conductivity-type cladding layer, an active layer and a second-conductivity-type cladding layer are stacked in this order as viewed from the side more closer to the residual substrate portion; a transparent semiconductor layer composed of a III-V compound

semiconductor having a band gap energy larger than photon energy corresponded to the peak wavelength of emission beam from the light emitting layer portion is formed on the first main surface side of the light emitting layer portion; and, an electrode-forming cut-off portion is formed by cutting off the main compound semiconductor layer in a partial region of the second main surface thereof, over a range from the second main surface side of the main compound semiconductor layer to at least a first main surface of the active layer; the electrode-forming cut-off portion has a second electrode portion, disposed on the bottom surface thereof, differed in polarity from the first electrode portion; and the first main surface of the transparent semiconductor layer serves as the main light extraction surface.

7. (currently amended A method of fabricating the light emitting device described in ~~any one of Claims 1 to 6~~ Claim 1, comprising:

a composite growth-assisting substrate preparation step preparing a composite growth-assisting substrate by epitaxially growing a separation-assisting compound semiconductor layer composed of a III-V compound semiconductor single crystal having a composition differed from GaAs, on a first main surface of a substrate bulk composed of a GaAs single crystal, and by epitaxially growing a sub-substrate portion composed of a GaAs single crystal on the separation-assisting compound semiconductor layer;

a light emitting layer portion growth step epitaxially growing a main compound semiconductor layer having therein a light emitting layer portion, on a first main surface

of the sub-substrate portion;

a substrate bulk removal step removing the separation-assisting compound semiconductor layer by chemical etching, to thereby separate, from the composite growth-assisting substrate, the sub-substrate portion so as to be remained as a residual substrate portion on a second main surface of the main compound semiconductor layer; and

a cut-off portion forming step forming a cut-off portion by cutting off a portion of the residual substrate portion.

8. (new) The light emitting device as claimed in Claim 2, wherein the main compound semiconductor layer has a main light extraction surface formed on the first main surface side, and has a light-extraction-side electrode, through which emission drive voltage is applied to the light emitting layer portion, formed so as to cover a part of the first main surface of the main compound semiconductor layer;

the cut-off portion is formed, as an opening opened on the second main surface of the residual substrate portion, by partially cutting off the residual substrate portion disposed on the second main surface side of the main compound semiconductor layer, so as to leave the residual substrate portion around the periphery of the opening; and

the opening has, as being provided thereto, a reflective component reflecting the emission beam from the light emitting layer portion.

9. (new) The light emitting device as claimed in Claim 2, wherein the main compound

semiconductor layer has a main light extraction surface formed on the first main surface side, and has a light-extraction-side electrode, through which emission drive voltage is applied to the light emitting layer portion, formed so as to cover a part of the first main surface of the main compound semiconductor layer;

the cut-off portion is formed in the residual substrate portion disposed on the second main surface side of the main compound semiconductor layer, at least in a region straight under the light extraction surface, and at least a portion of the region straight under the light-extraction-side electrode is contained in the residual substrate portion.

10. (new) The light emitting device as claimed in Claim 2, wherein the cut-off portion is formed by cutting off a portion of the residual substrate portion, allowing the bottom surface of the cut-off portion to serve as a main light extraction surface, and the light-extraction-side electrode, through which emission drive voltage is applied to the light emitting layer portion, is formed so as to cover the second main surface of the residual substrate portion.

11. (new) The light emitting device as claimed in Claim 2, configured by epitaxially growing the main compound semiconductor layer, having therein the light emitting layer portion, on the first main surface of the sub-substrate portion; forming the cut-off portion in a part of the residual substrate portion; forming a first electrode portion, through which emission drive voltage is applied to the light emitting layer portion, so as to cover

the second main surface of the residual substrate portion;

the light emitting layer portion has a double heterostructure in which a first-conductivity-type cladding layer, an active layer and a second-conductivity-type cladding layer are stacked in this order as viewed from the side more closer to the residual substrate portion; a transparent semiconductor layer composed of a III-V compound semiconductor having a band gap energy larger than photon energy corresponded to the peak wavelength of emission beam from the light emitting layer portion is formed on the first main surface side of the light emitting layer portion; and, an electrode-forming cut-off portion is formed by cutting off the main compound semiconductor layer in a partial region of the second main surface thereof, over a range from the second main surface side of the main compound semiconductor layer to at least a first main surface of the active layer; the electrode-forming cut-off portion has a second electrode portion, disposed on the bottom surface thereof, differed in polarity from the first electrode portion; and the first main surface of the transparent semiconductor layer serves as the main light extraction surface.

12. (new) A method of fabricating the light emitting device described in Claim 2, comprising:

a composite growth-assisting substrate preparation step preparing a composite growth-assisting substrate by epitaxially growing a separation-assisting compound semiconductor layer composed of a III-V compound semiconductor single crystal having a composition differed from GaAs, on a first main surface of a substrate bulk

composed of a GaAs single crystal, and by epitaxially growing a sub-substrate portion composed of a GaAs single crystal on the separation-assisting compound semiconductor layer;

a. light emitting layer portion growth step epitaxially growing a main compound semiconductor layer having therein a light emitting layer portion, on a first main surface of the sub-substrate portion;

a substrate bulk removal step removing the separation-assisting compound semiconductor layer by chemical etching, to thereby separate, from the composite growth-assisting substrate, the sub-substrate portion so as to be remained as a residual substrate portion on a second main surface of the main compound semiconductor layer; and

a cut-off portion forming step forming a cut-off portion by cutting off a portion of the residual substrate portion.

13. (new) A method of fabricating the light emitting device described in Claim 3, comprising:

a composite growth-assisting substrate preparation step preparing a composite growth-assisting substrate by epitaxially growing a separation-assisting compound semiconductor layer composed of a III-V compound semiconductor single crystal having a composition differed from GaAs, on a first main surface of a substrate bulk composed of a GaAs single crystal, and by epitaxially growing a sub-substrate portion

composed of a GaAs single crystal on the separation-assisting compound semiconductor layer;

a light emitting layer portion growth step epitaxially growing a main compound semiconductor layer having therein a light emitting layer portion, on a first main surface of the sub-substrate portion;

a substrate bulk removal step removing the separation-assisting compound semiconductor layer by chemical etching, to thereby separate, from the composite growth-assisting substrate, the sub-substrate portion so as to be remained as a residual substrate portion on a second main surface of the main compound semiconductor layer; and

a cut-off portion forming step forming a cut-off portion by cutting off a portion of the residual substrate portion.

14. (new) A method of fabricating the light emitting device described in Claim 8, comprising:

a composite growth-assisting substrate preparation step preparing a composite growth-assisting substrate by epitaxially growing a separation-assisting compound semiconductor layer composed of a III-V compound semiconductor single crystal having a composition differed from GaAs, on a first main surface of a substrate bulk composed of a GaAs single crystal, and by epitaxially growing a sub-substrate portion composed of a GaAs single crystal on the separation-assisting compound semiconductor layer;

a light emitting layer portion growth step epitaxially growing a main compound semiconductor layer having therein a light emitting layer portion, on a first main surface of the sub-substrate portion;

a substrate bulk removal step removing the separation-assisting compound semiconductor layer by chemical etching, to thereby separate, from the composite growth-assisting substrate, the sub-substrate portion so as to be remained as a residual substrate portion on a second main surface of the main compound semiconductor layer; and

a cut-off portion forming step forming a cut-off portion by cutting off a portion of the residual substrate portion.

15. (new) A method of fabricating the light emitting device described in Claim 4, comprising:

a composite growth-assisting substrate preparation step preparing a composite growth-assisting substrate by epitaxially growing a separation-assisting compound semiconductor layer composed of a III-V compound semiconductor single crystal having a composition differed from GaAs, on a first main surface of a substrate bulk composed of a GaAs single crystal, and by epitaxially growing a sub-substrate portion composed of a GaAs single crystal on the separation-assisting compound semiconductor layer;

a light emitting layer portion growth step epitaxially growing a main compound semiconductor layer having therein a light emitting layer portion, on a first main surface

of the sub-substrate portion;

a substrate bulk removal step removing the separation-assisting compound semiconductor layer by chemical etching, to thereby separate, from the composite growth-assisting substrate, the sub-substrate portion so as to be remained as a residual substrate portion on a second main surface of the main compound semiconductor layer; and

a cut-off portion forming step forming a cut-off portion by cutting off a portion of the residual substrate portion.

16. (new) A method of fabricating the light emitting device described in Claim 9, comprising:

a composite growth-assisting substrate preparation step preparing a composite growth-assisting substrate by epitaxially growing a separation-assisting compound semiconductor layer composed of a III-V compound semiconductor single crystal having a composition differed from GaAs, on a first main surface of a substrate bulk composed of a GaAs single crystal, and by epitaxially growing a sub-substrate portion composed of a GaAs single crystal on the separation-assisting compound semiconductor layer;

a light emitting layer portion growth step epitaxially growing a main compound semiconductor layer having therein a light emitting layer portion, on a first main surface of the sub-substrate portion;

a substrate bulk removal step removing the separation-assisting compound

semiconductor layer by chemical etching, to thereby separate, from the composite growth-assisting substrate, the sub-substrate portion so as to be remained as a residual substrate portion on a second main surface of the main compound semiconductor layer; and

a cut-off portion forming step forming a cut-off portion by cutting off a portion of the residual substrate portion.

17. (new) A method of fabricating the light emitting device described in Claim 5, comprising:

a composite growth-assisting substrate preparation step preparing a composite growth-assisting substrate by epitaxially growing a separation-assisting compound semiconductor layer composed of a III-V compound semiconductor single crystal having a composition differed from GaAs, on a first main surface of a substrate bulk composed of a GaAs single crystal, and by epitaxially growing a sub-substrate portion composed of a GaAs single crystal on the separation-assisting compound semiconductor layer;

a light emitting layer portion growth step epitaxially growing a main compound semiconductor layer having therein a light emitting layer portion, on a first main surface of the sub-substrate portion;

a substrate bulk removal step removing the separation-assisting compound semiconductor layer by chemical etching, to thereby separate, from the composite growth-assisting substrate, the sub-substrate portion so as to be remained as a residual

substrate portion on a second main surface of the main compound semiconductor layer; and

a cut-off portion forming step forming a cut-off portion by cutting off a portion of the residual substrate portion.

18. (new) A method of fabricating the light emitting device described in Claim 10, comprising:

a composite growth-assisting substrate preparation step preparing a composite growth-assisting substrate by epitaxially growing a separation-assisting compound semiconductor layer composed of a III-V compound semiconductor single crystal having a composition differed from GaAs, on a first main surface of a substrate bulk composed of a GaAs single crystal, and by epitaxially growing a sub-substrate portion composed of a GaAs single crystal on the separation-assisting compound semiconductor layer;

a light emitting layer portion growth step epitaxially growing a main compound semiconductor layer having therein a light emitting layer portion, on a first main surface of the sub-substrate portion;

a substrate bulk removal step removing the separation-assisting compound semiconductor layer by chemical etching, to thereby separate, from the composite growth-assisting substrate, the sub-substrate portion so as to be remained as a residual substrate portion on a second main surface of the main compound semiconductor layer; and

a cut-off portion forming step forming a cut-off portion by cutting off a portion of the residual substrate portion.

19. (new) A method of fabricating the light emitting device described in Claim 6, comprising:

a composite growth-assisting substrate preparation step preparing a composite growth-assisting substrate by epitaxially growing a separation-assisting compound semiconductor layer composed of a III-V compound semiconductor single crystal having a composition differed from GaAs, on a first main surface of a substrate bulk composed of a GaAs single crystal, and by epitaxially growing a sub-substrate portion composed of a GaAs single crystal on the separation-assisting compound semiconductor layer;

a light emitting layer portion growth step epitaxially growing a main compound semiconductor layer having therein a light emitting layer portion, on a first main surface of the sub-substrate portion;

a substrate bulk removal step removing the separation-assisting compound semiconductor layer by chemical etching, to thereby separate, from the composite growth-assisting substrate, the sub-substrate portion so as to be remained as a residual substrate portion on a second main surface of the main compound semiconductor layer; and

a cut-off portion forming step forming a cut-off portion by cutting off a portion of the residual substrate portion.

20. (new) A method of fabricating the light emitting device described in Claim 11, comprising:

a composite growth-assisting substrate preparation step preparing a composite growth-assisting substrate by epitaxially growing a separation-assisting compound semiconductor layer composed of a III-V compound semiconductor single crystal having a composition differed from GaAs, on a first main surface of a substrate bulk composed of a GaAs single crystal, and by epitaxially growing a sub-substrate portion composed of a GaAs single crystal on the separation-assisting compound semiconductor layer;

a light emitting layer portion growth step epitaxially growing a main compound semiconductor layer having therein a light emitting layer portion, on a first main surface of the sub-substrate portion;

a substrate bulk removal step removing the separation-assisting compound semiconductor layer by chemical etching, to thereby separate, from the composite growth-assisting substrate, the sub-substrate portion so as to be remained as a residual substrate portion on a second main surface of the main compound semiconductor layer; and

a cut-off portion forming step forming a cut-off portion by cutting off a portion of the residual substrate portion.